

Debugging your JavaScript

Debugging your
JavaScript, HTML,
and CSS

Debugging your
JavaScript, HTML,
and CSS on Desktop
and Mobile

Making Your Web Stuff Work

Who am I?

- Raymond Camden
(raymondcamden.com)
- Senior Developer Evangelist @ Adobe
- @cfjedimaster
- I make bugs for a living





So, um, we have a
problem

It isn't the bugs

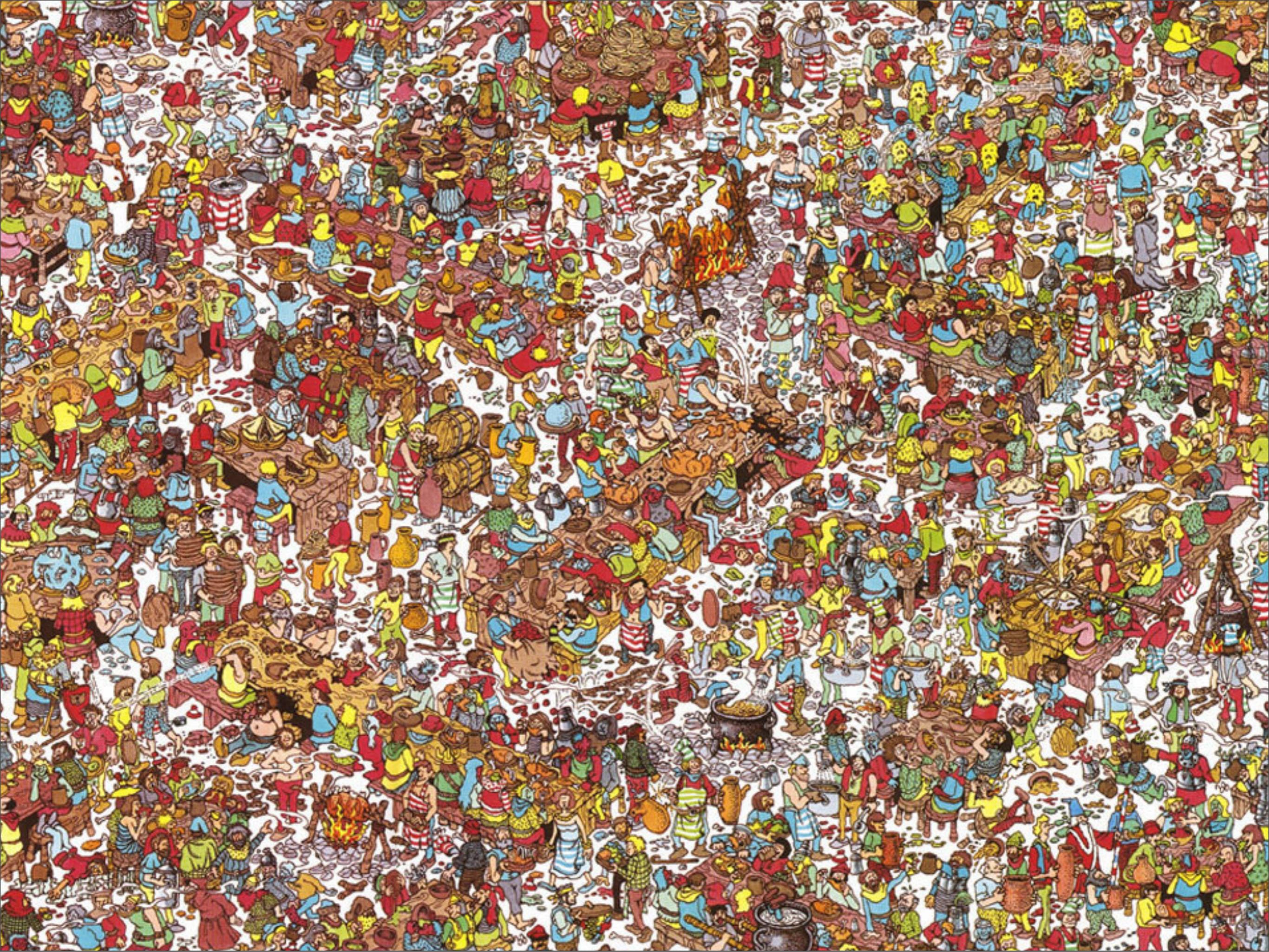
9/9

- 0800 Arctan started
 1000 stopped - arctan ✓ { 1. 2700 9.037847025
 13' uc (033) MP-MC 2. 482649000 9.037846995 const
 033 PRO 2 2. 130476415 4.615925059(-2)
 const 2. 130476415
 Relay 6-2 in 033 failed special speed test
 in Relay 10.00 test.
 1100 Started Cosine Tap (Sine check)
 1525 Started Multi Adder Test.
 1545 Relay #70 Panel F
 (moth) in relay.
- 
- ~~1600~~ Arctangent started.
 1700 closed down.
- First actual case of bug being found.

American engineers have been calling small flaws in machines "bugs" for over a century. Thomas Edison talked about bugs in electrical circuits in the 1870s. When the first computers were built during the early 1940s, people working on them found bugs in both the hardware of the machines and in the programs that ran them.

In 1947, engineers working on the Mark II computer at Harvard University found a moth stuck in one of the components. They taped the insect in their logbook and labeled it "first actual case of bug being found." The words "bug" and "debug" soon became a standard part of the language of computer programmers.

The problem is
finding the bug



[Download](#)[Demos & Documentation](#)[Themes](#)[Development](#)[Support](#)

SAN FRANCISCO, CALIFORNIA
JUNE 28 & 29, 2012
events.jquery.org

Interactions

- [Draggable](#)
- [Droppable](#)
- [Resizable](#)
- [Selectable](#)
- [Sortable](#)

Widgets

- [Accordion](#)
- [Autocomplete](#)
- [Button](#)
- [Datepicker](#)
- [Dialog](#)
- [Progressbar](#)
- [Slider](#)
- [Tabs](#)

Autocomplete

[Theme: UI lightness](#)[New window](#)

Tags:

Examples

Default functionality

- [Remote datasource](#)
- [Remote with caching](#)
- [Remote JSONP datasource](#)
- [Scrollable results](#)
- [Combobox](#)
- [Custom data and display](#)
- [XML data parsed once](#)
- [Categories](#)
- [Accent folding](#)
- [Multiple values](#)
- [Multiple, remote](#)

What has to work...

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- JavaScript enabled

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- jQuery Loaded

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- jQuery UI Loaded

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What has to work...

- JavaScript enabled
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- jQuery UI Loaded
- jQuery UI CSS Loaded
- Have to select the right DOM for the autocomplete
- Have to ensure your setup options match what the control needs
- Have to ensure your data source (which is probably remote) is working right

Lots of Opportunities

WE SHALL DECIDE



YOUR LEVEL OF FAIL

The First
Bug
is one you
probably don't
know you have



Can you spot the bug?

The screenshot shows the MySpace homepage from 2011. At the top, there's a banner for a contest where fans can enter for a chance to win awesome prizes. Below that, there are two main sections: 'TOP HIP HOP PLAYLIST' featuring Chris Brown and Usher, and 'SEEKING A FRIEND FOR THE END OF THE WORLD' featuring Steve Carell and Keira Knightley. To the right, there's a sign-up form for new members, a 'Connect with Facebook' button, and a sidebar for the 'MYSPACE MUSIC PLAYER'. At the bottom, there are links for 'NEW MYSPACE PLAYLISTS', 'MUSIC SONG CHARTS', and 'MUSIC VIDEO CHARTS'.

Myspace | Social Entertainment

http://www.myspace.com/

myspace Sign up Login Search People Music Video Games Browse People

Enter today with an existing YouTube video link, for a chance to win up to \$25,000 and open for a National Act!

2011 WAS BIG NATIONAL ACTS INCLUDED: PLAIN WHITE T'S

FANS CAN ENTER FOR A CHANCE TO WIN AWESOME PRIZES

CHARTER CENTER STAGE INTERNET SPEEDS UP TO 30 MBPS \$29.99

LEARN MORE

Restrictions apply.

TOP HIP HOP PLAYLIST

Chris Brown & Usher get along on this playlist

SEEKING A FRIEND FOR THE END OF THE WORLD

'Who's More Likely To' with Steve Carell, Keira Knightley & the cast

WATCH ►

Sign up free

Already a member? Login

OR

Connect with Facebook

Raymond Camden, Ryan Vikander and Mike Andler use Myspace.

Open Player

1 2 3 MUSIC SONG CHARTS

MUSIC VIDEO CHARTS

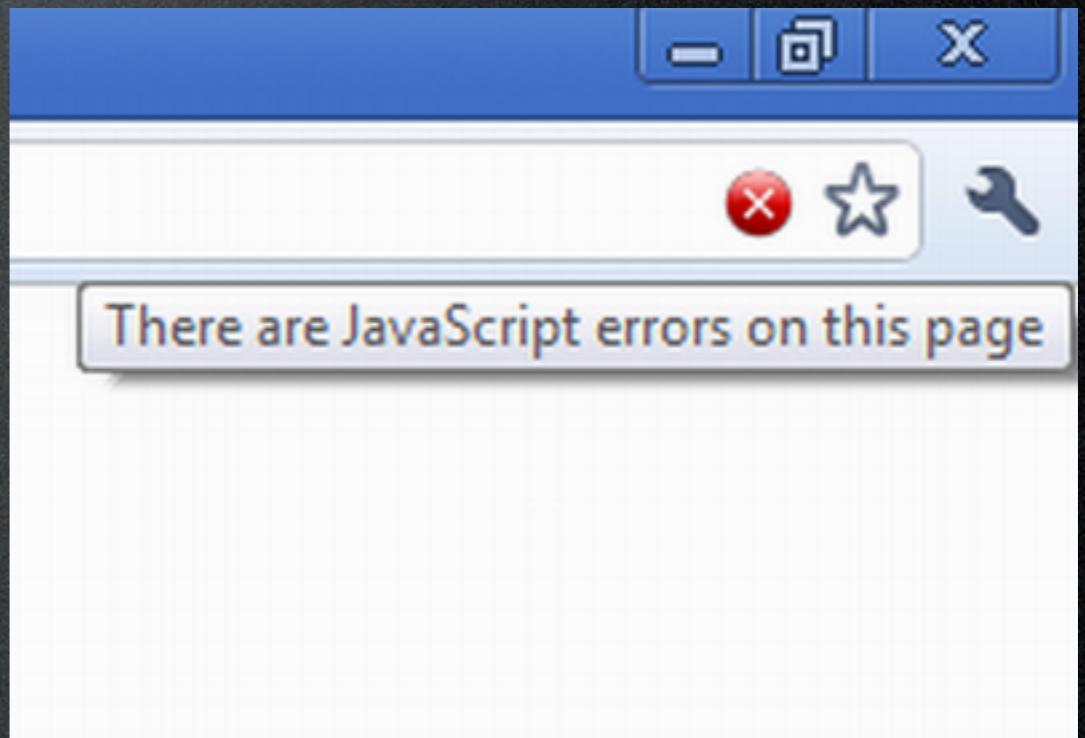


Being Proactive

- Checking the tools we're going to cover later
- Unit Testing

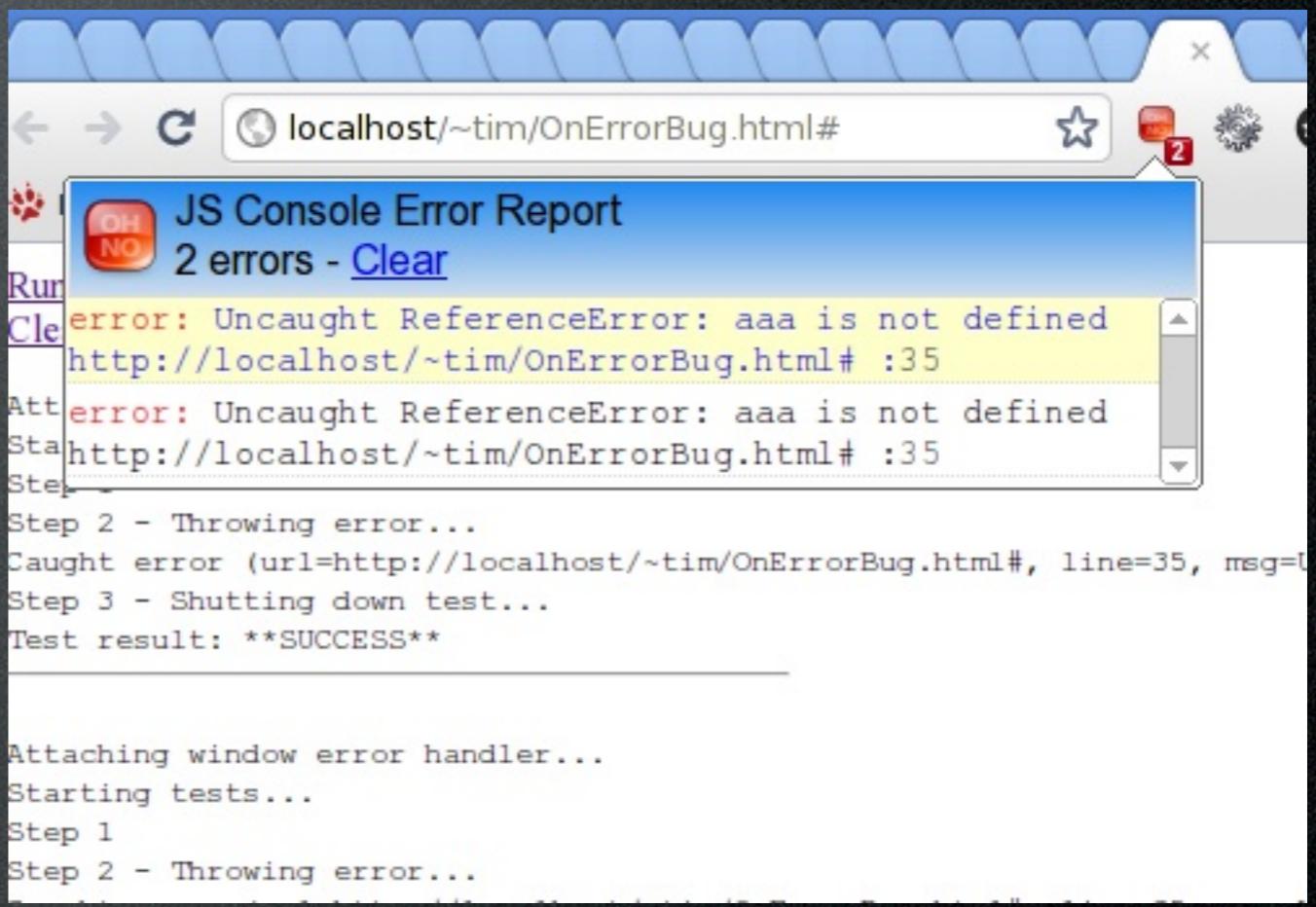
Chrome Extensions

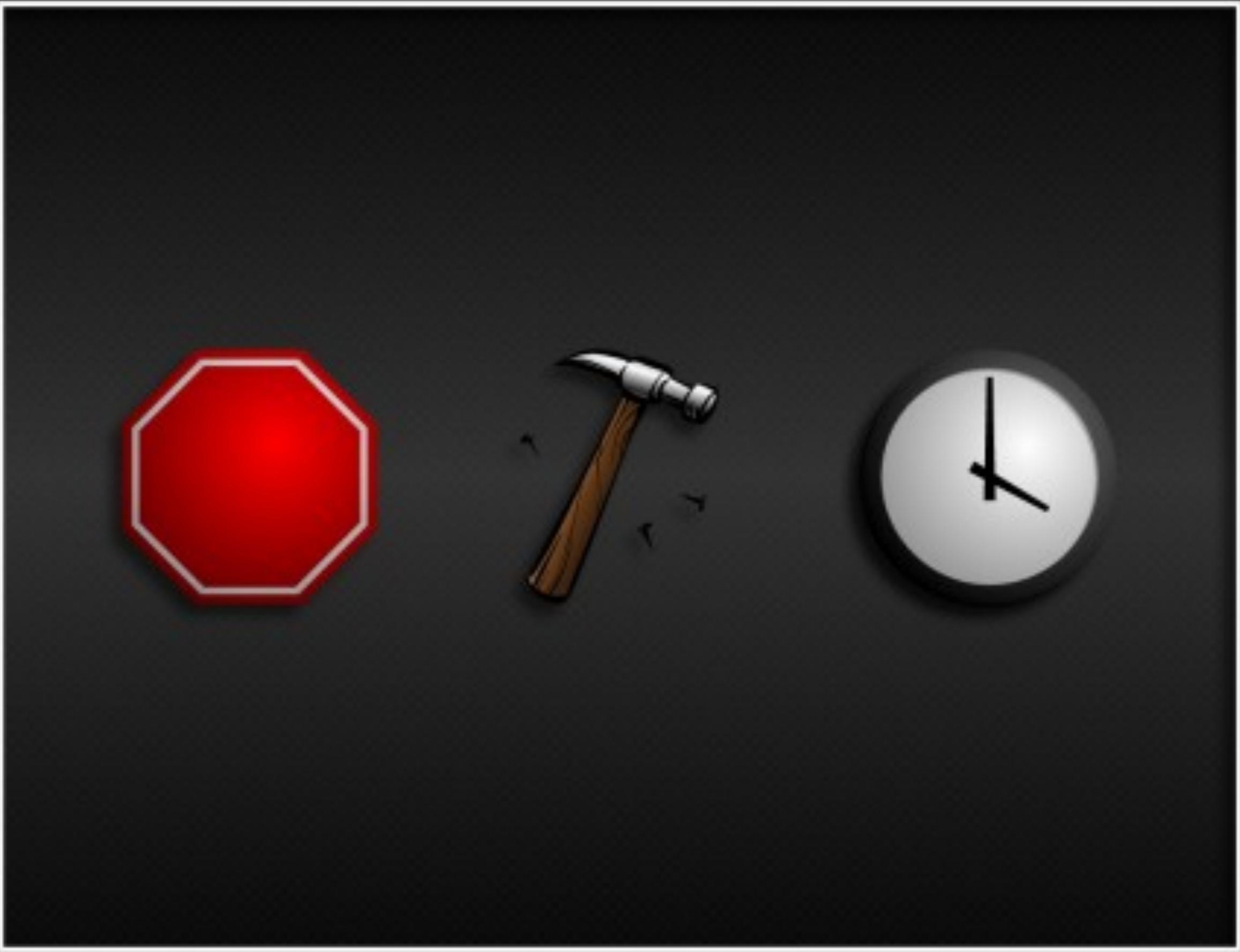
- javascript-error-notifier
- <http://code.google.com/p/javascript-error-notifier/>



Chrome Extensions

- jsError
- <https://github.com/schmerg/JsError>





test1

{errorception}

- <http://errorception.com/>
- 30 day trial
- \$5 plan that reports up to 500 errors
- Works via simple embed

{errorception}

Showing all errors

Access is denied.

On line 18 of <https://apis.google.com/js/plusone.js> on 139 different pages.



Seen in 2 different versions of Internet Explorer. Last seen 3 minutes ago. Occurred 255 times so far. Occurred before page load.

255 occurrences this week

Отказано в доступе.

On line 18 of <https://apis.google.com/js/plusone.js> on 2 different pages.



Seen in Internet Explorer 9. Last seen 33 minutes ago. Occurred 2 times so far. Occurred before page load.

2 occurrences this week

window.frames.print_frame_D1897B91BF2BEB0CBCEDA700AAF476C4 is...

In an inline script on <http://www.raymondcamden.com/index.cfm/2011/4/5/Collapsible-content-in-a-Flash-Component>...



Seen in Firefox 13. Last seen 3 hours ago. Occurred once so far. Occurred after page load.

1 occurrence this week

Accès refusé.

On line 18 of <https://apis.google.com/js/plusone.js> on 11 different pages.



Seen in Internet Explorer 9. Last seen 3 hours ago. Occurred 14 times so far. Occurred before page load.

14 occurrences this week

הגישה נדחתה.

On line 18 of <https://apis.google.com/js/plusone.js> on 1 page.



Seen in Internet Explorer 9. Last seen 3 hours ago. Occurred once so far. Occurred before page load.

1 occurrence this week

Åtkomst nekad.

On line 18 of <https://apis.google.com/js/plusone.js> on 2 different pages.



Seen in Internet Explorer 9. Last seen 3 hours ago. Occurred 2 times so far. Occurred before page load.

2 occurrences this week

Toegang geweigerd.

On line 18 of <https://apis.google.com/js/plusone.js> on 6 different pages.

8 occurrences this week

Access is denied.

Where

Line 18 in <https://apis.google.com/js/plusone.js>

Note: Line numbers may not be too useful in IE. Curse it!

Browsers

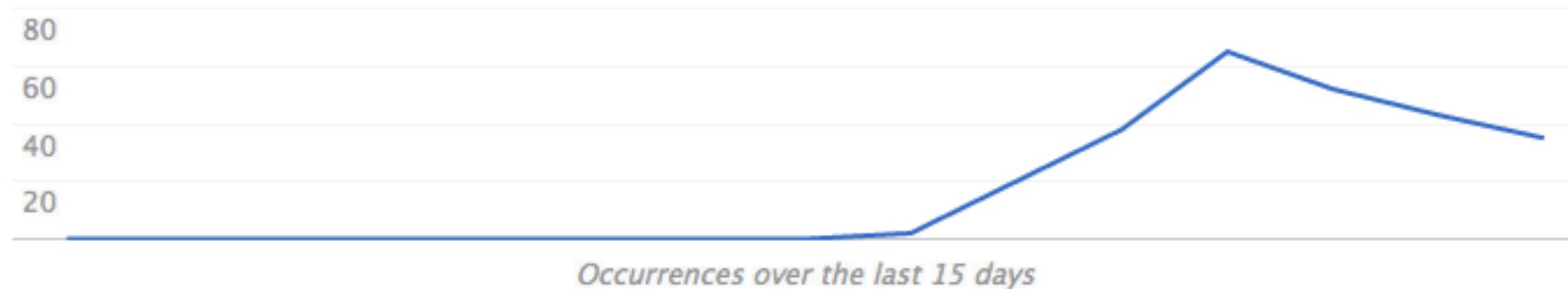


When

Before page load

Occurrences

255 total occurrences. First seen 6 days ago. Last seen 5 minutes ago.



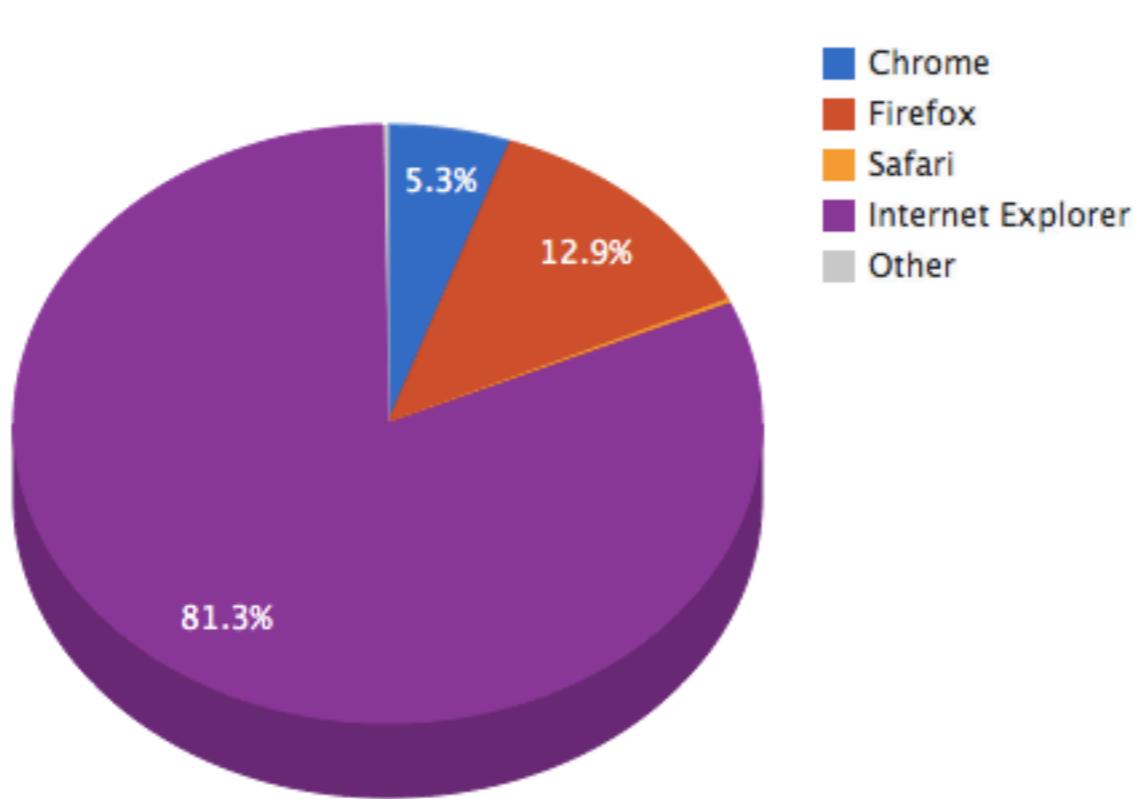
On pages

<http://www.raymondcamden.com/index.cfm/2011/4/3/Example-of-jQuery-Mobile-...>
<http://www.raymondcamden.com/index.cfm/2011/3/9/Adding-driving-directions-t...>
<http://www.raymondcamden.com/index.cfm/2012/1/19/Downloading-files-to-a-Ph...>
<http://www.raymondcamden.com/index.cfm/2009/2/10/An-Introduction-to-jQuery...>
<http://www.raymondcamden.com/index.cfm/2007/7/26/Getting-a-page-from-a-P...>
<http://www.raymondcamden.com/index.cfm/2012/6/11/ColdFusion-Developer-Wee...>
<http://www.raymondcamden.com/index.cfm/2009/11/17/Looking-For-Writing-Cold...>
<http://www.raymondcamden.com/index.cfm/2009/2/9/An-introduction-to-jQuery-...>

Graphs



Browsers



■ Chrome
■ Firefox
■ Safari
■ Internet Explorer
■ Other

Browsers	Errors
Internet Explorer	993
Firefox	157
Chrome	65
Safari	3
Chromium	1
iPad	1
RockMelt	1
Total	1221

You've got a bug, now what?

- Learn your browser tools
- It doesn't necessarily matter if it's not your standard browser
- And guess what - you can use more than one (really)

Chrome Dev Tools

- Wrench -> Tools -> Developer Tools
- Keyboard combo
- Run at bottom, right, detached



What we care about...

- Console
- Network
- Elements
- Scripts/Sources
- Resources

Console

- Errors show up here
- You can run commands here as well as code in your page
- You can view log messages here

console API

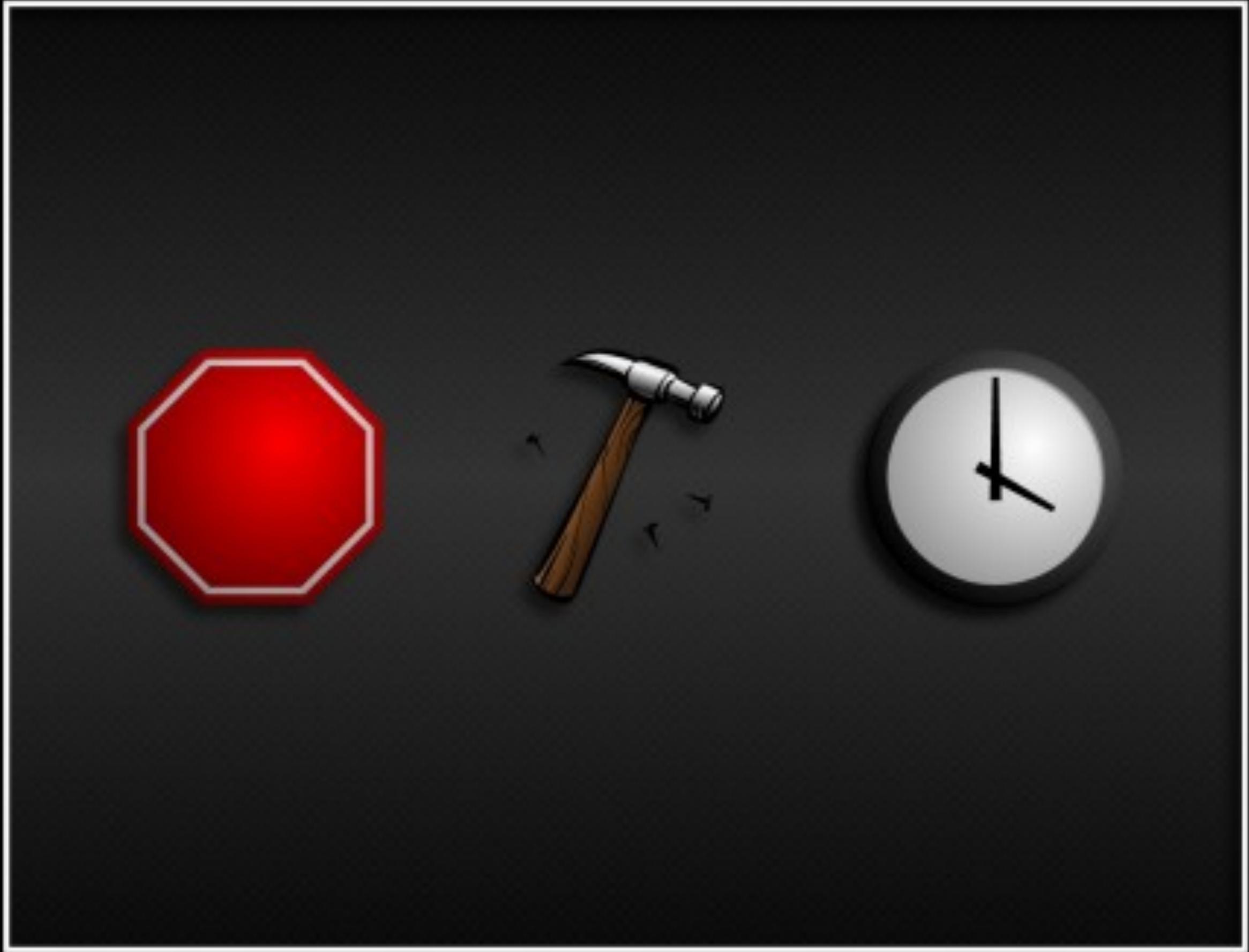
- Your code can send messages to the console
- I use the heck out of this
- No, really, I make logs like a lumberjack

console API

- [http://getfirebug.com/wiki/index.php/
Console_API](http://getfirebug.com/wiki/index.php/Console_API)
- **log**, error, warn, info, count, debug, profileend, trace, dir, dirxml, assert, time, profile, timeEnd, group, groupEnd

console.log

- `console.log("this works");`
- `console.log("What is X "+x);`
- `console.log("X",x);`
- `console.log(object);`



test2

Add log to document ready.

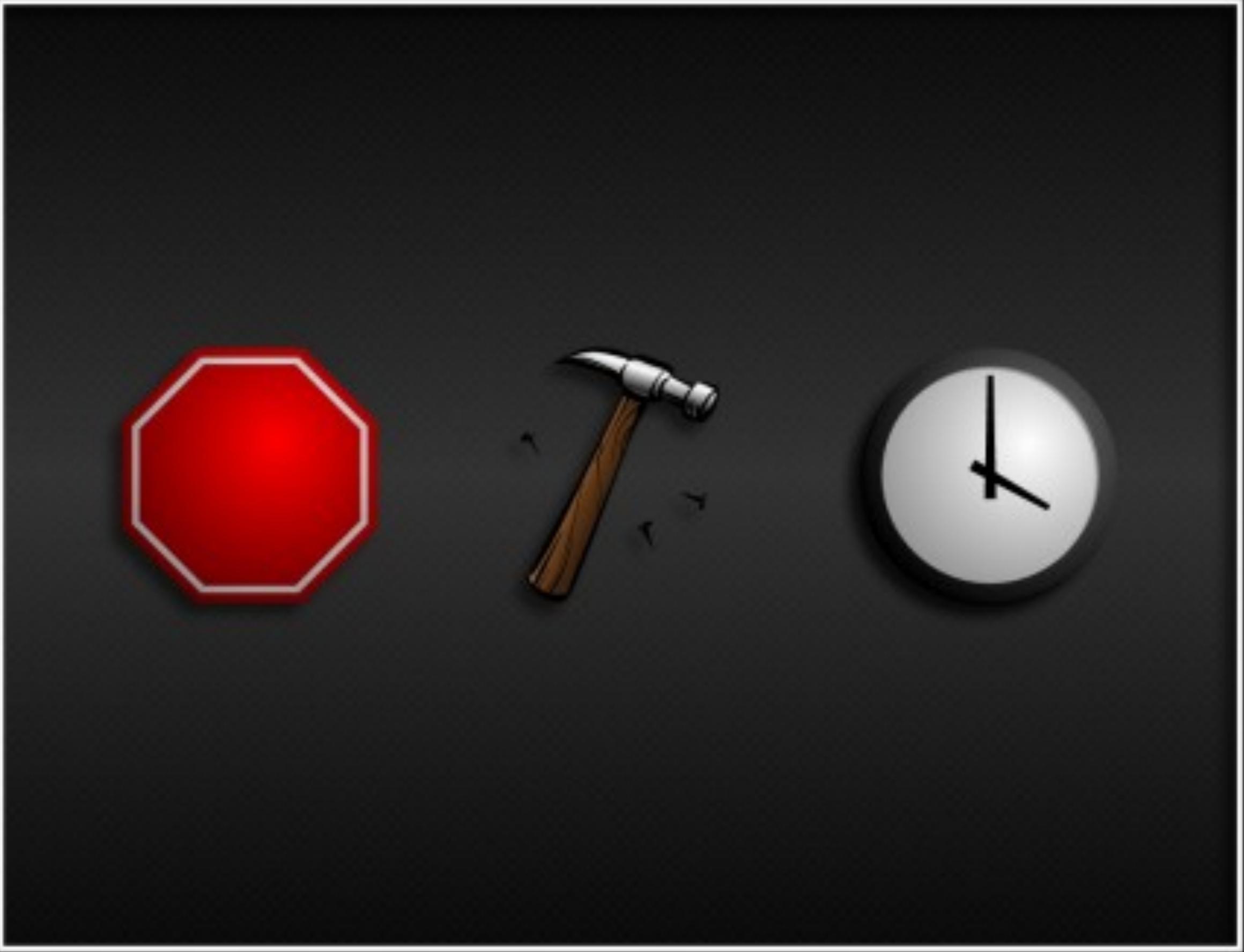
Add log for click event

Show \$("#simButton") in console returning nothing

Show Elements and hunt for it

console.dir

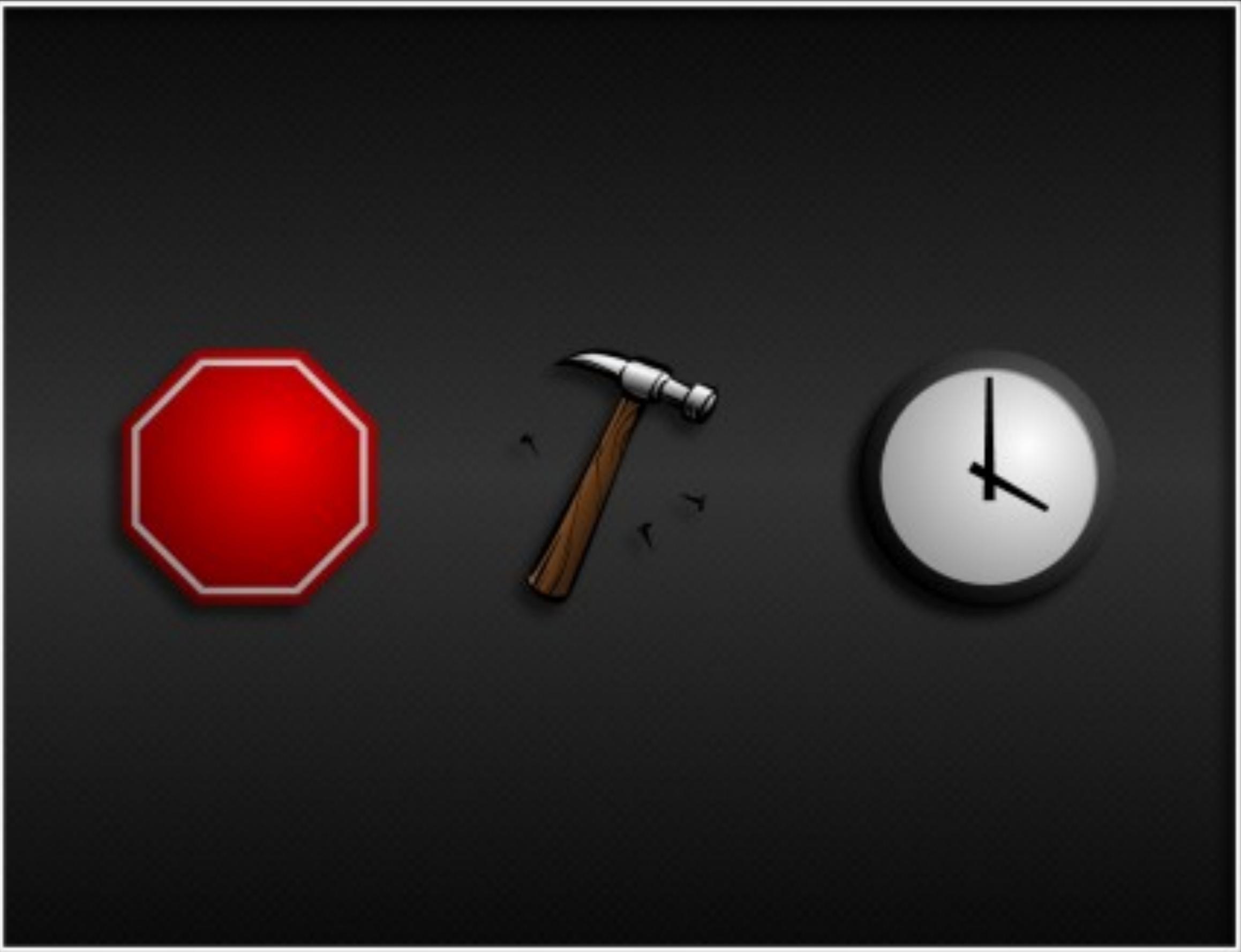
- Dumps an object
- Great for introspecting remote data
- Firebug does it nicer (a bit)



Just show in console how you can console.dir navigator,window, etc

Network Requests

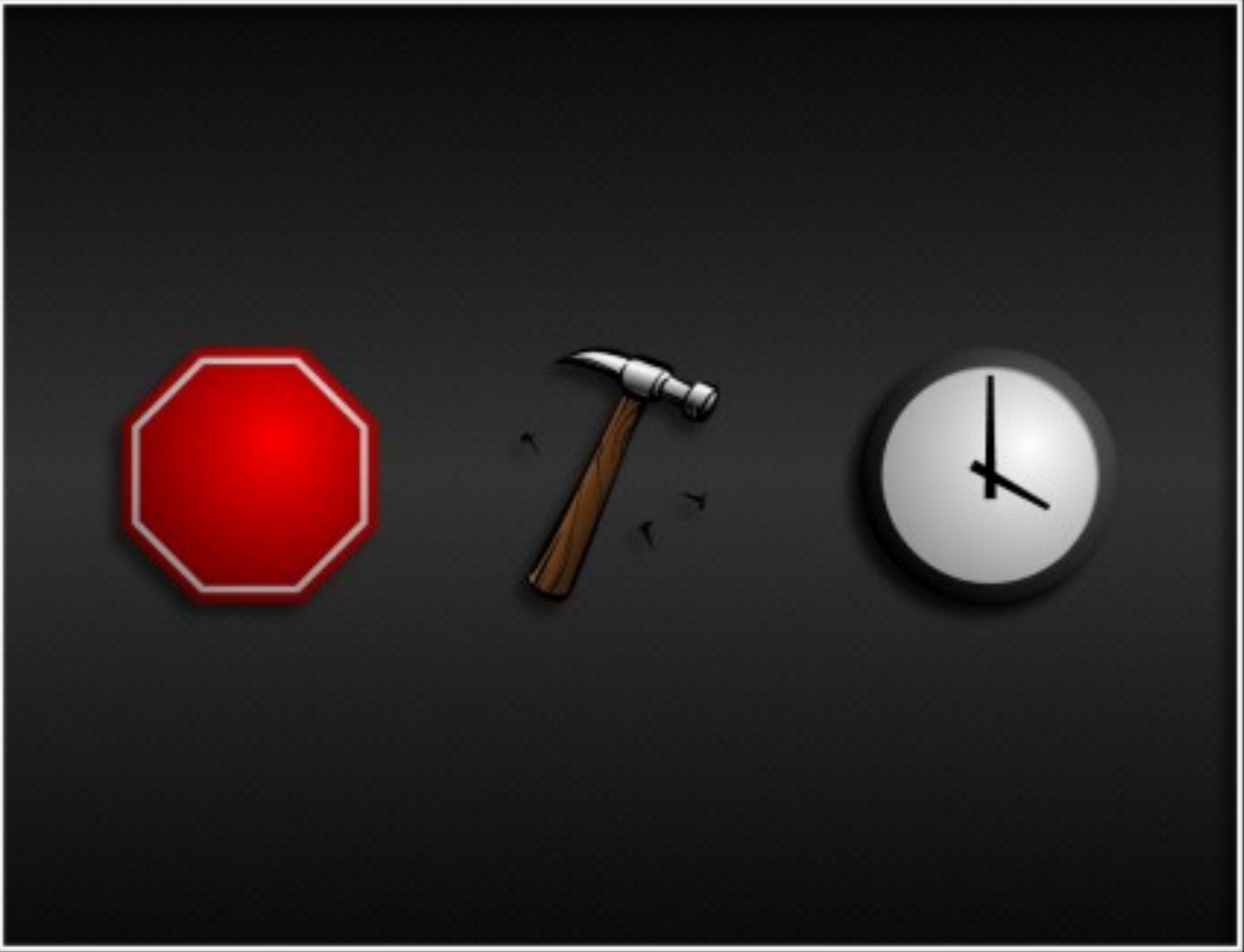
- Check the output
- Check **all** the output
- Look for things like redirects on session timeout
- JSON/P is a bit different



demo3 + jsonp

Elements

- Handy for looking at your DOM
- Which may be dynamic (ColdFusion, Ruby, PHP, etc)
- Which may be dynamic (JavaScript)



demo4.
show safari and test1 failing
test2 -> bad html

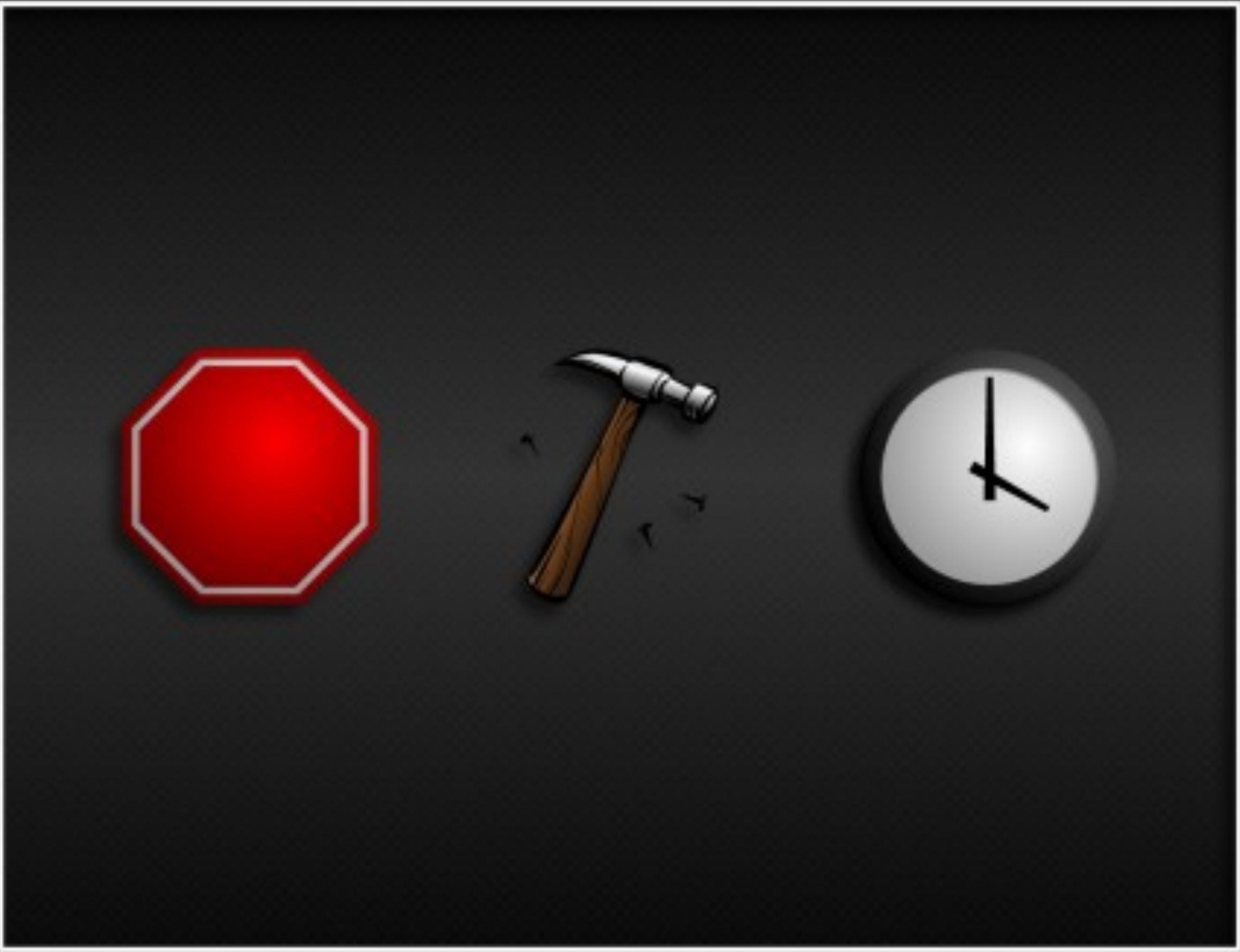
Scripts/Sources

- List of all the scripts on your page
- This is your debugger
- (p.s. note the stop on error magic trick)

Show prettyprint

Debugger Key Terms

- Breakpoints
 - Specific
 - Dynamic
 - DOM Change, XHR, Events
- Stepping
 - Multiple ways to progress



demo5

Resources

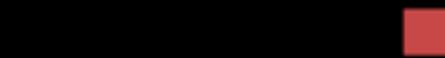
- Cookies, Databases, IndexedDB, Local (and Session) Storage, Application Cache
- As well as HTML, JS, CSS

The State of Mobile



Desktop is Awesome!

Mobile has “opportunity to grow”



First rule of mobile testing -
don't test on mobile!



Testing on Desktop

- PRO: Much, much, much quicker
- CON: Network access
- CON: Hardware access
- CON: Look and feel

CON: Network Access

- Your AJAX code can't open URLs on remote servers
- Chrome makes this easy:
 - open -a /Applications/Chrome\ Dev/ Google\ Chrome.app --args --allow-file-access-from-files --disable-web-security
- JSONP and CORS

CON: Hardware Access

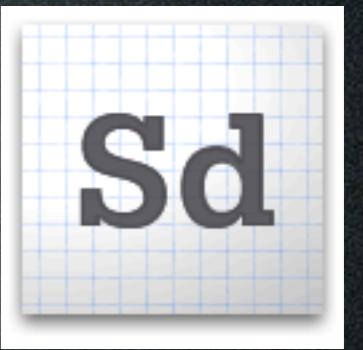
- onDeviceReady
- Trust the Gap

Ray – might want to mention touch support in Chrome

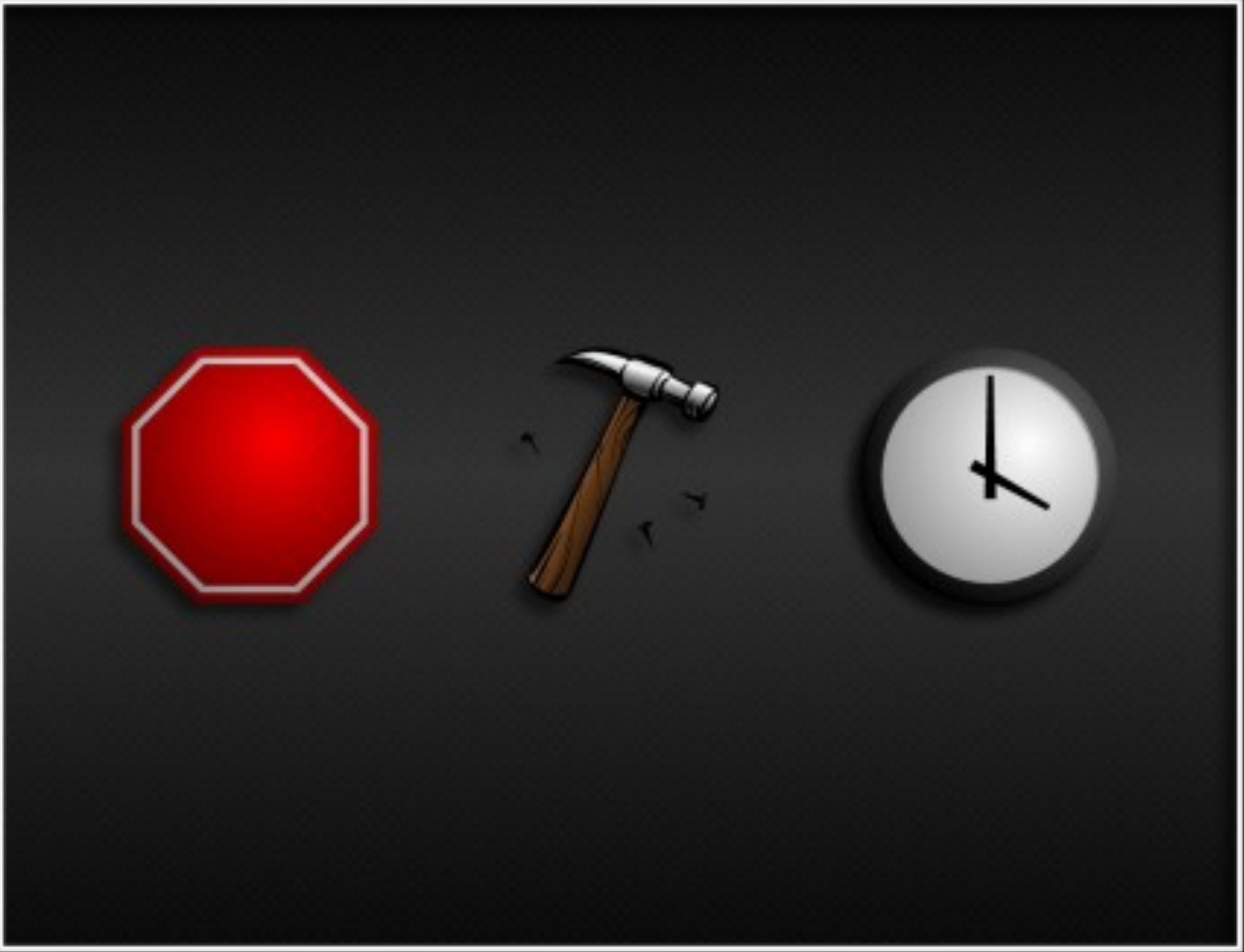
CON: Look and feel

- Use a UI framework like jQuery Mobile
- Use....

Adobe Shadow



- Syncs your desktop and mobile devices
- Takes screenshots, handles caches
- Made with pure Awesome-sauce



shadow demo

Testing on Device

- You must do this.
- See the bullet point above.

Options?

- Shadow, again
- Weinre (debug.phonegap.com)
- Console FTW

The Last Resort



OVERCONFIDENCE

This is going to end in disaster, and you have no one to blame but yourself.

Questions?

- You can email me here:
raymondcamden@gmail.com
- You can view my blog here:
raymondcamden.com